

REMARKS

Claim 51 was objected to under 37 C.F.R. 1.75 as being a substantial duplicate of Claim 20. Claim 51 has been amended above to correctly reflect its dependency on Claim 40 vice Claim 1.

Claims 40-50 and 52-58 were rejected under 35 U.S.C. 251 as being an improper recapture of broadened claimed subject matter surrendered in the application for the patent upon which the present reissue is based. Claims 40-50 and 52-58 were also rejected under 35 U.S.C. § 112, First Paragraph; these rejections will be addressed on appeal.

Claims 1,5,21,22,40,42, and 48 were rejected under 35 U.S.C. 102(b) as being anticipated by Hegel, Jr., et al. (US 4752694A). Claims 6,7,12,13,15,19,24,25, 44-47, and 50 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hegel, Jr. et al. The Examiner is respectfully requested to reconsider these rejections.

Claims 2-4,8,11,14,16-18,20,23, and 26-35 have been allowed.

Claims 1-35, and 40-58, are now pending in this case.

35 U.S.C sec. 102(b) Rejections

Claim 1 of the present application recites an infrared imaging system. The claimed system comprises an infrared focal plane array, which in turn comprises a plurality of infrared detector elements arranged in an array. In addition, Claim 1 also recites means for separately correcting offsets in the detection signals to compensate for nonuniformities in the detector elements. Nowhere does Hegel disclose or suggest applying offsets to the detection signals. In rejecting Claim 1 the Examiner has likened Hegel's FETS 14,15, and 16 and Hegel's means 60 to the present Claim 1 element of separately correcting offsets in the detection signals to compensate for nonuniformities in the detector elements. The Applicants respectfully disagree and point out that what Hegel provides is transistor biasing voltages, which in turn control current flow through Hegel's FETS 14-16. Nowhere does Hegel disclose or suggest providing an offset to compensate for nonuniformities of detector elements.

Furthermore, the Examiner states that Hegel's memory (fig. 1, item 70) stores offset correction values. The Applicants respectfully disagree and point out that what Hegel's memory holds is transistor biasing values for precisely controlling how much current is allowed to flow through the particular Hegel FET. It will be understood that precisely controlling current flow through a device and applying voltage offsets to the output of a device are not the same. This is made more clear by considering that to precisely control current through the Hegel FET requires an in-depth knowledge of the FET operating parameters, and that the FET ambient drain-source-

gate voltage potentials be properly biased within the Hegel circuit in order to compensate for component variations. Clearly, this is not the same as applying an offset to the output of a device to compensate for component variation. Nor, as pointed out, does Hegel disclose or suggest applying offsets, but merely transistor biasing voltages to control current through a FET. Therefore, Claim 1 is patentable and should be allowed.

Claim 5 of the present application recites the feature of having a number of switches equal in number to the number of circuit elements. The Examiner rejected Claim 5 by pointing to Hegel's switches A, B, and C. As pointed out above, and repeated here, these Hegel switches control current flow through the detectors and do not apply offsets as recited in the present Claim 5. Nowhere does Hegel disclose or suggest the application of offsets. Therefore Claim 5 is patentable and should be allowed.

Claim 21 of the present application recites timing means for providing focal plane timing signals to the readout circuit. The Examiner states that Hegel anticipates this claim by providing "clock input" to the readout circuit. However, the only thing that Hegel says in this regard is that the sequencer provides the signals necessary to synchronize the operation of memory, switch, and the readout circuit. It will be appreciated that this is not the same as providing a timing signal to a readout circuit to control readout and offset correction. Particularly, when Hegel does not disclose or suggest anything about offset corrections. Therefore, Claim 21 is patentable and should be allowed.

Claim 22 of the present application recites the features that the readout circuit comprises offset correction logic means for controlling the means for correcting, in response to the timing signals presented to the readout circuit. As pointed out above, and repeated here, Hegel does not provide timing signals to the readout circuit or suggest offset correction logic means for controlling the means for correcting. Therefore, Claim 22 is patentable and should be allowed.

35 U.S.C. sec. 103(a) Rejections

Claim 6 of the present application recites the features of storing offset correction values in binary form. The Applicants again point out that the present claim's offset correction values are not the same as transistor biasing voltages. Since Hegel does not disclose or suggest anything about offset correction values, binary or otherwise, Claim 6 is patentable and should be allowed.

Claim 7 of the present application recites the feature of storing a separate binary offset for each detector. As pointed out earlier, Hegel does not disclose or suggest applying offsets and consequently does not disclose or suggest anything about storing binary offsets; therefore Claim 7 is patentable and should be allowed.

Claim 12 of the present application recites the features of forming the detector array and the readout circuit on a single monolithic integrated circuit chip. The Examiner rejected this claim with the statement that it would have been obvious to one of ordinary skill to form on a single monolithic IC the system illustrated by Hegel. For the sake of argument, with regards to Hegel's system that may be true, however, whether or not Hegel's system could be formed on a monolithic IC has no bearing on whether or not it's obvious to form the present invention, as recited in Claim 12 with the features of Claim 1, on a monolithic IC. Therefore, Claim 12 is patentable and should be allowed.

Claim 13 of the present application recites the feature that the detector elements of Claim 1 comprise micro-bolometer detector elements. In rejecting this Claim the Examiner points to Hegel and states that Hegel is a bolometer and that the choice of size is a choice within the ordinary skill in the art. However, Hegel does not disclose or suggest applying offsets to the Hegel bolometers. Hegel does not disclose applying offsets to micro-bolometers. Therefore, Claim 13 is patentable and should be allowed.

Claim 15 of the present application recites the feature of a fixed voltage source coupled to the micro-bolometers recited in Claim 13. As noted above, the micro-bolometers of the present application are not disclosed or suggested in Hegel. Hegel does not disclose or suggest applying offsets to such micro-bolometers. Therefore, Claim 15 is patentable and should be allowed.

Claim 19 of the present application recites the feature of the output means comprising one or more buffers. In rejecting this claim, the Examiner states that it would have been obvious to one of ordinary skill to include buffers in view of the circuit protection that would have been provided. However, the Applicants point out that buffers are not just for circuit protection, and the inclusion of such, in many situations, is not desirable, and therefore certainly not obvious. Moreover, the Applicants assert that the first prong of establishing a *prima facie* case of obviousness has not been met. First, there is no suggestion in Hegel to add such buffers nor is it obvious to one skilled in the art to simply add buffers to Hegel. Indeed, adding buffers could cause synchronization and timing problems, increase current drain, increase operating temperature, and so on. Clearly, adding buffers is not an obvious or trivial step. Therefore, since it would not be obvious to add buffers to Hegel, and Hegel does not disclose or suggest adding buffers, Claim 19 is patentable and should be allowed.

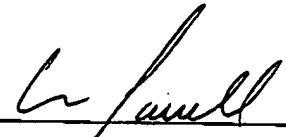
Claim 24 of the present application recites an infrared imaging system comprising means for analog-to-digital converting (ADC) the corrected detection signals, and providing corresponding image data for each detector element. Hegel, on the other hand, merely provides output means to a "preamp and readout circuit", (Hegel Figure 1). There is no suggestion anywhere in Hegel that Hegel's readout circuit contain an ADC; it could be an analog readout circuit. Indeed, the Hegel preamp shown in Hegel's figure 1 suggests that the Hegel readout is in the analog domain. Since Hegel does not

suggest or disclose analog-to-digital converting (ADC) the corrected detection signals and providing corresponding digital image data for each detector element, Claim 24 is patentable and should be allowed.

Claim 25 of the present application recites a memory for storing image data corresponding to all the detector elements of the array. Again, Hegel merely shows a preamp and readout circuit. Nowhere does Hegel disclose or suggest that this readout circuit store digital image data. It will be appreciated that the Hegel readout circuit is not the same, nor can it be reasonably construed to be the same, as a memory device. Therefore, Claim 25 is patentable and should be allowed.

With regard to paragraph 11, page 11 of the Office Action, a change of address form is attached. Should any unresolved issue remain, the Examiner is invited to call Applicants' Attorney at the telephone number indicated below.

Respectfully submitted,

  
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3/5/02  
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